

## SEQUENCE LISTING

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STAHN, RENATE  
KARSTEN, UWE

<120> RECOGNITION MOLECULES FOR THE TREATMENT AND DETECTION  
OF TUMORS

<130> GULDE-63

<140> 10/540,479  
<141> 2005-06-23

<150> PCT/DE04/00132  
<151> 2004-01-23

<150> DE 103 03 664.4  
<151> 2003-01-23

<160> 91

<170> PatentIn Ver. 3.3

<210> 1  
<211> 5  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 1  
Asp Ala Trp Met Asp  
1 5

<210> 2  
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<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 2  
Asn Tyr Trp Met Asn  
1 5

<210> 3  
<211> 19  
<212> PRT  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 3

Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu Ser  
1 5 10 15

Val Lys Gly

<210> 4

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 4

Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu Ser  
1 5 10 15

Val Lys Gly

<210> 5

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 5

Gly Gly Tyr Gly Phe Asp Tyr  
1 5

<210> 6

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 6

His Tyr Tyr Phe Asp Tyr  
1 5

<210> 7  
 <211> 16  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 peptide

<400> 7  
 Arg Ser Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu Glu  
           1                  5                  10                  15

<210> 8  
 <211> 16  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 peptide

<400> 8  
 Arg Ser Ser Lys Ser Leu Leu His Ser Asn Gly Ile Thr Tyr Phe Phe  
           1                  5                  10                  15

<210> 9  
 <211> 7  
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<220>  
 <223> Description of Artificial Sequence: Synthetic  
 peptide

<400> 9  
 Lys Val Ser Asn Arg Phe Ser  
           1                  5

<210> 10  
 <211> 7  
 <212> PRT  
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<220>  
 <223> Description of Artificial Sequence: Synthetic  
 peptide

<400> 10  
 Gln Met Ser Asn Leu Ala Ser  
           1                  5

<210> 11  
<211> 9  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 11  
Phe Gln Gly Ser His Val Pro Leu Thr  
1 5

<210> 12  
<211> 9  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 12  
Ala Gln Asn Leu Glu Leu Pro Pro Thr  
1 5

<210> 13  
<211> 5  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 13  
Asn Tyr Trp Val Asn  
1 5

<210> 14  
<211> 5  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 14  
Asn Tyr Trp Ile Asn  
1 5

<210> 15  
<211> 5  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 15  
Asn Tyr Trp Tyr Asn  
1 5

<210> 16  
<211> 5  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 16  
Asn Tyr Trp Trp Asn  
1 5

<210> 17  
<211> 5  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 17  
Asp Ala Trp Ile Asp  
1 5

<210> 18  
<211> 5  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 18  
Asp Ala Trp Val Asp  
1 5

<210> 19  
 <211> 5  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 peptide

<400> 19  
 Asp Ala Trp Tyr Asp  
       1                  5

<210> 20  
 <211> 5  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 peptide

<400> 20  
 Asp Ala Trp Trp Asp  
       1                  5

<210> 21  
 <211> 19  
 <212> PRT  
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<220>  
 <223> Description of Artificial Sequence: Synthetic  
 peptide

<400> 21  
 Glu Ile Arg Ser Lys Ala Asn Asn Tyr Ala Thr Tyr Tyr Ala Glu Ser  
       1                  5                  10                  15

Val Lys Gly

<210> 22  
 <211> 19  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 peptide

<400> 22  
 Glu Ile Arg Leu Lys Ser Asn Lys Tyr Thr Thr His Tyr Ala Glu Ser  
       1                  5                  10                  15

Val Lys Gly

<210> 23  
 <211> 19  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 peptide

<400> 23  
 Glu Ile Arg Leu Lys Ser Asn Ser Tyr Thr Thr His Tyr Ala Glu Ser  
           1                  5                  10                  15

Val Lys Gly

<210> 24  
 <211> 16  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 peptide

<400> 24  
 Arg Pro Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu Glu  
           1                  5                  10                  15

<210> 25  
 <211> 16  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 peptide

<400> 25  
 Arg Ser Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Phe Glu  
           1                  5                  10                  15

<210> 26  
 <211> 16  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 peptide

<400> 26

Arg Pro Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Phe Glu  
 1 5 10 15

<210> 27

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 peptide

<400> 27

Arg Pro Ser Lys Ser Leu Leu His Ser Asn Gly Ile Thr Tyr Phe Phe  
 1 5 10 15

<210> 28

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 peptide

<400> 28

Arg Ser Ser Lys Ser Leu Leu His Ser Asn Gly Ile Thr Tyr Leu Phe  
 1 5 10 15

<210> 29

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 peptide

<400> 29

Arg Pro Ser Lys Ser Leu Leu His Ser Asn Gly Ile Thr Tyr Leu Phe  
 1 5 10 15

<210> 30

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 peptide



&lt;400&gt; 30

Phe Gln Gly Ser His Pro Pro Leu Thr  
 1 5

&lt;210&gt; 31

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 peptide

&lt;400&gt; 31

Ala Gln Asn Leu Glu Pro Pro Pro Thr  
 1 5

&lt;210&gt; 32

&lt;211&gt; 118

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 32

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15

Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala  
 20 25 30

Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
 35 40 45

Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu  
 50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser  
 65 70 75 80

Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr  
 85 90 95

Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr  
 100 105 110

Thr Leu Thr Val Ser Ser  
 115

&lt;210&gt; 33

&lt;211&gt; 117

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 33

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15

Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr  
                   20                  25                  30  
 Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
                   35                  40                  45  
 Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu  
                   50                  55                  60  
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser  
                   65                  70                  75                  80  
 Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr  
                   85                  90                  95  
 Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr  
                   100                  105                  110  
 Leu Thr Val Ser Ser  
                   115

<210> 34  
 <211> 114  
 <212> PRT  
 <213> Mus musculus

<400> 34  
 Asp Ile Val Leu Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly  
           1                  5                  10                  15  
 Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser  
                   20                  25                  30  
 Asn Gly Asn Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser  
                   35                  40                  45  
 Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro  
                   50                  55                  60  
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile  
                   65                  70                  75                  80  
 Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly  
                   85                  90                  95  
 Ser His Val Pro Leu Thr Phe Gly Asp Gly Thr Lys Leu Glu Leu Lys  
                   100                  105                  110  
 Arg Ala

<210> 35  
 <211> 114  
 <212> PRT  
 <213> Mus musculus

&lt;400&gt; 35

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Asp Ile Val Met Thr Gln Ala Ala Phe Ser Asn Pro Val Thr Leu Gly
 1             5             10             15

Thr Ser Ala Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser
      20             25             30

Asn Gly Ile Thr Tyr Phe Phe Trp Tyr Leu Gln Lys Pro Gly Leu Ser
      35             40             45

Pro Gln Leu Leu Ile Tyr Gln Met Ser Asn Leu Ala Ser Gly Val Pro
      50             55             60

Asp Arg Phe Ser Ser Ser Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile
 65             70             75             80

Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn
      85             90             95

Leu Glu Leu Pro Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
      100            105            110

Arg Ala

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&lt;210&gt; 36

&lt;211&gt; 275

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
single chain Fv format

&lt;400&gt; 36

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Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1             5             10             15

Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala
      20             25             30

Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
      35             40             45

Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu
      50             55             60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser
      65             70             75             80

Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr
      85             90             95

Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr
      100            105            110

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Thr Leu Thr Val Ser Ser Ala Ser Ser Gly Gly Gly Gly Ser Gly Gly  
 115 120 125  
 Gly Gly Ser Gly Gly Ser Ala Arg Asp Ile Val Leu Thr Gln Thr Pro  
 130 135 140  
 Leu Ser Leu Pro Val Ser Leu Gly Asp Gln Ala Ser Ile Ser Cys Arg  
 145 150 155 160  
 Ser Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu Glu Trp  
 165 170 175  
 Tyr Leu Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr Lys Val  
 180 185 190  
 Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser  
 195 200 205  
 Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Leu  
 210 215 220  
 Gly Val Tyr Tyr Cys Phe Gln Gly Ser His Val Pro Leu Thr Phe Gly  
 225 230 235 240  
 Asp Gly Thr Lys Leu Glu Leu Lys Arg Ala Ala Ala His His His His  
 245 250 255  
 His His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn  
 260 265 270  
 Gly Ala Ala  
 275

<210> 37  
 <211> 266  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 single chain Fv format

<400> 37  
 Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15  
 Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala  
 20 25 30  
 Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
 35 40 45  
 Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu  
 50 55 60  
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser  
 65 70 75 80

Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr  
                     85                    90                    95  
 Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr  
                     100                    105                    110  
 Thr Leu Thr Val Ser Ser Ala Ser Ser Gly Ser Gly Ser Ser Ala Asp  
                     115                    120                    125  
 Ile Val Leu Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly Asp  
                     130                    135                    140  
 Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser Asn  
                     145                    150                    155                    160  
 Gly Asn Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro  
                     165                    170                    175  
 Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp  
                     180                    185                    190  
 Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser  
                     195                    200                    205  
 Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly Ser  
                     210                    215                    220  
 His Val Pro Leu Thr Phe Gly Asp Gly Thr Lys Leu Glu Leu Lys Arg  
                     225                    230                    235                    240  
 Ala Ala Ala His His His His His His Gly Ala Ala Glu Gln Lys Leu  
                     245                    250                    255  
 Ile Ser Glu Glu Asp Leu Asn Gly Ala Ala  
                     260                    265

<210> 38

<211> 265

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
single chain Fv format

<400> 38

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
     1                    5                    10                    15

Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala  
                     20                    25                    30

Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
                     35                    40                    45

Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu  
50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser  
65 70 75 80

Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr  
85 90 95

Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr  
100 105 110

Thr Leu Thr Val Ser Ser Ala Ser Ser Gly Gly Ser Ser Ala Asp Ile  
115 120 125

Val Leu Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly Asp Gln  
130 135 140

Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser Asn Gly  
145 150 155 160

Asn Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Lys  
165 170 175

Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg  
180 185 190

Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg  
195 200 205

Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly Ser His  
210 215 220

Val Pro Leu Thr Phe Gly Asp Gly Thr Lys Leu Glu Leu Lys Arg Ala  
225 230 235 240

Ala Ala His His His His His His Gly Ala Ala Glu Gln Lys Leu Ile  
245 250 255

Ser Glu Glu Asp Leu Asn Gly Ala Ala  
260 265

<210> 39

<211> 264

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
single chain Fv format

<400> 39

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
1 5 10 15

Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala  
20 25 30

Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
           35                          40                          45  
 Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu  
           50                          55                          60  
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser  
           65                          70                          75                          80  
 Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr  
                           85                          90                          95  
 Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr  
                           100                          105                          110  
 Thr Leu Thr Val Ser Ser Ala Ser Ser Gly Ser Ser Ala Asp Ile Val  
           115                          120                          125  
 Leu Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly Asp Gln Ala  
           130                          135                          140  
 Ser Ile Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser Asn Gly Asn  
           145                          150                          155                          160  
 Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Lys Leu  
                           165                          170                          175  
 Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe  
                           180                          185                          190  
 Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val  
           195                          200                          205  
 Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly Ser His Val  
           210                          215                          220  
 Pro Leu Thr Phe Gly Asp Gly Thr Lys Leu Glu Leu Lys Arg Ala Ala  
           225                          230                          235                          240  
 Ala His His His His His His Gly Ala Ala Glu Gln Lys Leu Ile Ser  
                           245                          250                          255  
 Glu Glu Asp Leu Asn Gly Ala Ala  
           260

<210> 40

<211> 263

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
single chain Fv format

&lt;400&gt; 40

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15  
 Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala  
 20 25 30  
 Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
 35 40 45  
 Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu  
 50 55 60  
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser  
 65 70 75 80  
 Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr  
 85 90 95  
 Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr  
 100 105 110  
 Thr Leu Thr Val Ser Ser Ala Ser Ser Ser Ser Ala Asp Ile Val Leu  
 115 120 125  
 Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly Asp Gln Ala Ser  
 130 135 140  
 Ile Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr  
 145 150 155 160  
 Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu  
 165 170 175  
 Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser  
 180 185 190  
 Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu  
 195 200 205  
 Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly Ser His Val Pro  
 210 215 220  
 Leu Thr Phe Gly Asp Gly Thr Lys Leu Glu Leu Lys Arg Ala Ala Ala  
 225 230 235 240  
 His His His His His His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu  
 245 250 255  
 Glu Asp Leu Asn Gly Ala Ala  
 260

&lt;210&gt; 41

&lt;211&gt; 262

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence



<220>

<223> Description of Artificial Sequence: Synthetic single chain Fv format

<400> 41

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
1 5 10 15

Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala  
20 25 30

Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
35 40 45

Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu  
50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser  
65 70 75 80

Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr  
85 90 95

Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr  
100 105 110

Thr Leu Thr Val Ser Ser Ala Ser Ser Ser Ala Asp Ile Val Leu Thr  
115 120 125

Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly Asp Gln Ala Ser Ile  
130 135 140

Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr  
145 150 155 160

Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile  
165 170 175

Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly  
180 185 190

Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala  
195 200 205

Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly Ser His Val Pro Leu  
210 215 220

Thr Phe Gly Asp Gly Thr Lys Leu Glu Leu Lys Arg Ala Ala Ala Hi  
225 230 235 24

His His His His His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Gl  
245 250 255

Asp Leu Asn Gly Ala Ala  
260

<210> 42  
 <211> 261  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 single chain Fv format

<400> 42  
 Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15  
 Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala  
 20 25 30  
 Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
 35 40 45  
 Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu  
 50 55 60  
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser  
 65 70 75 80  
 Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr  
 85 90 95  
 Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr  
 100 105 110  
 Thr Leu Thr Val Ser Ser Ala Ser Ser Ala Asp Ile Val Leu Thr Gln  
 115 120 125  
 Thr Pro Leu Ser Leu Pro Val Ser Leu Gly Asp Gln Ala Ser Ile Ser  
 130 135 140  
 Cys Arg Ser Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu  
 145 150 155 160  
 Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr  
 165 170 175  
 Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser  
 180 185 190  
 Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu  
 195 200 205  
 Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly Ser His Val Pro Leu Thr  
 210 215 220  
 Phe Gly Asp Gly Thr Lys Leu Glu Leu Lys Arg Ala Ala Ala His His  
 225 230 235 240  
 His His His His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp  
 245 250 255

Leu Asn Gly Ala Ala  
260

<210> 43  
<211> 260  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
single chain Fv format

<400> 43  
Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
1 5 10 15  
Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala  
20 25 30  
Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
35 40 45  
Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu  
50 55 60  
Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser  
65 70 75 80  
Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr  
85 90 95  
Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr  
100 105 110  
Thr Leu Thr Val Ser Ser Ala Ser Ala Asp Ile Val Leu Thr Gln Thr  
115 120 125  
Pro Leu Ser Leu Pro Val Ser Leu Gly Asp Gln Ala Ser Ile Ser Cys  
130 135 140  
Arg Ser Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu Glu  
145 150 155 160  
Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr Lys  
165 170 175  
Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly  
180 185 190  
Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp  
195 200 205  
Leu Gly Val Tyr Tyr Cys Phe Gln Gly Ser His Val Pro Leu Thr Phe  
210 215 220  
Gly Asp Gly Thr Lys Leu Glu Leu Lys Arg Ala Ala Ala His His His  
225 230 235 240

His His His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu  
 245 250 255

Asn Gly Ala Ala  
 260

<210> 44

<211> 259

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 single chain Fv format

<400> 44

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15  
 Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala  
 20 25 30  
 Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
 35 40 45  
 Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu  
 50 55 60  
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser  
 65 70 75 80  
 Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr  
 85 90 95  
 Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr  
 100 105 110  
 Thr Leu Thr Val Ser Ser Ala Ala Asp Ile Val Leu Thr Gln Thr Pro  
 115 120 125  
 Leu Ser Leu Pro Val Ser Leu Gly Asp Gln Ala Ser Ile Ser Cys Arg  
 130 135 140  
 Ser Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu Glu Trp  
 145 150 155 160  
 Tyr Leu Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr Lys Val  
 165 170 175  
 Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser  
 180 185 190  
 Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Leu  
 195 200 205

Gly Val Tyr Tyr Cys Phe Gln Gly Ser His Val Pro Leu Thr Phe Gly  
 210 215 220

Asp Gly Thr Lys Leu Glu Leu Lys Arg Ala Ala Ala His His His His  
 225 230 235 240

His His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn  
 245 250 255

Gly Ala Ala

<210> 45

<211> 255

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 single chain Fv format

<400> 45

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15

Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala  
 20 25 30

Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
 35 40 45

Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu  
 50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser  
 65 70 75 80

Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr  
 85 90 95

Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr  
 100 105 110

Thr Leu Thr Val Ser Ser Ala Asp Ile Val Leu Thr Gln Thr Pro Leu  
 115 120 125

Ser Leu Pro Val Ser Leu Gly Asp Gln Ala Ser Ile Ser Cys Arg Ser  
 130 135 140

Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu Glu Trp Tyr  
 145 150 155 160

Leu Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr Lys Val Ser  
 165 170 175

Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly  
 180 185 190

Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Leu Gly  
 195 200 205

Val Tyr Tyr Cys Phe Gln Gly Ser His Val Pro Leu Thr Phe Gly Asp  
 210 215 220

Gly Thr Lys Leu Glu Leu Lys Arg Ala Ala Ala His His His His His  
 225 230 235 240

His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Val His Gln  
 245 250 255

<210> 46

<211> 257

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 single chain Fv format

<400> 46

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15

Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala  
 20 25 30

Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
 35 40 45

Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu  
 50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser  
 65 70 75 80

Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr  
 85 90 95

Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr  
 100 105 110

Thr Leu Thr Val Ser Ser Asp Ile Val Leu Thr Gln Thr Pro Leu Ser  
 115 120 125

Leu Pro Val Ser Leu Gly Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser  
 130 135 140

Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu Glu Trp Tyr Leu  
 145 150 155 160

Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn  
 165 170 175

Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr  
 180 185 190

Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Leu Gly Val  
 195 200 205

Tyr Tyr Cys Phe Gln Gly Ser His Val Pro Leu Thr Phe Gly Asp Gly  
 210 215 220

Thr Lys Leu Glu Leu Lys Arg Ala Ala Ala His His His His His His  
 225 230 235 240

Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Gly Ala  
 245 250 255

Ala

<210> 47  
 <211> 256  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 single chain Fv format

<400> 47  
 Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15

Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala  
 20 25 30

Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
 35 40 45

Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu  
 50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser  
 65 70 75 80

Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr  
 85 90 95

Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr  
 100 105 110

Thr Leu Thr Val Ser Asp Ile Val Leu Thr Gln Thr Pro Leu Ser Leu  
 115 120 125

Pro Val Ser Leu Gly Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln  
 130 135 140

Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu Glu Trp Tyr Leu Gln  
 145 150 155 160

Lys	Pro	Gly	Gln	Ser	Pro	Lys	Leu	Leu	Ile	Tyr	Lys	Val	Ser	Asn	Arg	
				165					170					175		
Phe	Ser	Gly	Val	Pro	Asp	Arg	Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	
				180					185					190		
Phe	Thr	Leu	Lys	Ile	Ser	Arg	Val	Glu	Ala	Glu	Asp	Leu	Gly	Val	Tyr	
				195					200					205		
Tyr	Cys	Phe	Gln	Gly	Ser	His	Val	Pro	Leu	Thr	Phe	Gly	Asp	Gly	Thr	
				210					215					220		
Lys	Leu	Glu	Leu	Lys	Arg	Ala	Ala	Ala	His	His	His	His	His	His	Gly	
225					230					235					240	
Ala	Ala	Glu	Gln	Lys	Leu	Ile	Ser	Glu	Glu	Asp	Leu	Asn	Gly	Ala	Ala	
				245					250					255		

```
<210> 48
<211> 274
<212> PRT
<213> Artificial Sequence
```

```
<220>
<223> Description of Artificial Sequence: Synthetic
      single chain Fv format
```

```
<400> 48  
Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
   1                               5               10              15  
  
Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr  
                20                      25             30  
  
Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
          35                          40              45  
  
Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu  
    50                              55              60  
  
Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser  
   65                        70           75            80  
  
Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr  
                85                  90              95  
  
Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr  
      100                    105              110  
  
Leu Thr Val Ser Ser Ala Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly  
     115                   120              125
```



Gly Ser Gly Gly Ser Ala Arg Asp Ile Val Met Thr Gln Ala Ala Phe  
130 135 140

Ser Asn Pro Val Thr Leu Gly Thr Ser Ala Ser Ile Ser Cys Arg Ser  
145 150 155 160

Ser Lys Ser Leu Leu His Ser Asn Gly Ile Thr Tyr Phe Phe Trp Tyr  
165 170 175

Leu Gln Lys Pro Gly Leu Ser Pro Gln Leu Leu Ile Tyr Gln Met Ser  
180 185 190

Asn Leu Ala Ser Gly Val Pro Asp Arg Phe Ser Ser Ser Gly Ser Gly  
195 200 205

Thr Asp Phe Thr Leu Arg Ile Ser Arg Val Glu Ala Glu Asp Val Gly  
210 215 220

Val Tyr Tyr Cys Ala Gln Asn Leu Glu Leu Pro Pro Thr Phe Gly Gly  
225 230 235 240

Gly Thr Lys Leu Glu Ile Lys Arg Ala Ala Ala His His His His His  
245 250 255

His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Gly  
260 265 270

Ala Ala

<210> 49

<211> 265

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
single chain Fv format

<400> 49

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
1 5 10 15

Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr  
20 25 30

Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
35 40 45

Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu  
50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser  
65 70 75 80

Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr  
85 90 95

Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr  
 100 105 110  
 Leu Thr Val Ser Ser Ala Ser Ser Gly Ser Gly Ser Ser Ala Asp Ile  
 115 120 125  
 Val Met Thr Gln Ala Ala Phe Ser Asn Pro Val Thr Leu Gly Thr Ser  
 130 135 140  
 Ala Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser Asn Gly  
 145 150 155 160  
 Ile Thr Tyr Phe Phe Trp Tyr Leu Gln Lys Pro Gly Leu Ser Pro Gln  
 165 170 175  
 Leu Leu Ile Tyr Gln Met Ser Asn Leu Ala Ser Gly Val Pro Asp Arg  
 180 185 190  
 Phe Ser Ser Ser Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile Ser Arg  
 195 200 205  
 Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn Leu Glu  
 210 215 220  
 Leu Pro Pro Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala  
 225 230 235 240  
 Ala Ala His His His His His His Gly Ala Ala Glu Gln Lys Leu Ile  
 245 250 255  
 Ser Glu Glu Asp Leu Asn Gly Ala Ala  
 260 265

<210> 50

<211> 264

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
single chain Fv format

<400> 50

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15  
 Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr  
 20 25 30  
 Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
 35 40 45  
 Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu  
 50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser  
 65 70 75 80  
 Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr  
 85 90 95  
 Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr  
 100 105 110  
 Leu Thr Val Ser Ser Ala Ser Ser Gly Gly Ser Ser Ala Asp Ile Val  
 115 120 125  
 Met Thr Gln Ala Ala Phe Ser Asn Pro Val Thr Leu Gly Thr Ser Ala  
 130 135 140  
 Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser Asn Gly Ile  
 145 150 155 160  
 Thr Tyr Phe Phe Trp Tyr Leu Gln Lys Pro Gly Leu Ser Pro Gln Leu  
 165 170 175  
 Leu Ile Tyr Gln Met Ser Asn Leu Ala Ser Gly Val Pro Asp Arg Phe  
 180 185 190  
 Ser Ser Ser Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile Ser Arg Val  
 195 200 205  
 Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn Leu Glu Leu  
 210 215 220  
 Pro Pro Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala Ala  
 225 230 235 240  
 Ala His His His His His His Gly Ala Ala Glu Gln Lys Leu Ile Ser  
 245 250 255  
 Glu Glu Asp Leu Asn Gly Ala Ala  
 260

&lt;210&gt; 51

&lt;211&gt; 263

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 single chain Fv format

&lt;400&gt; 51

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15  
 Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr  
 20 25 30  
 Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
 35 40 45

Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu  
 50 55 60  
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser  
 65 70 75 80  
 Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr  
 85 90 95  
 Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr  
 100 105 110  
 Leu Thr Val Ser Ser Ala Ser Ser Gly Ser Ser Ala Asp Ile Val Met  
 115 120 125  
 Thr Gln Ala Ala Phe Ser Asn Pro Val Thr Leu Gly Thr Ser Ala Ser  
 130 135 140  
 Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser Asn Gly Ile Thr  
 145 150 155 160  
 Tyr Phe Phe Trp Tyr Leu Gln Lys Pro Gly Leu Ser Pro Gln Leu Leu  
 165 170 175  
 Ile Tyr Gln Met Ser Asn Leu Ala Ser Gly Val Pro Asp Arg Phe Ser  
 180 185 190  
 Ser Ser Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile Ser Arg Val Glu  
 195 200 205  
 Ala Glu Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn Leu Glu Leu Pro  
 210 215 220  
 Pro Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala Ala Ala  
 225 230 235 240  
 His His His His His His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu  
 245 250 255  
 Glu Asp Leu Asn Gly Ala Ala  
 260

<210> 52

<211> 262

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
single chain Fv format

<400> 52

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15

Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr  
                   20                                  25                                  30  
 Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
                   35                                  40                                  45  
 Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu  
                   50                                  55                                  60  
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser  
                   65                                  70                                  75                                  80  
 Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr  
                                   85                                  90                                  95  
 Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr  
                   100                                  105                                  110  
 Leu Thr Val Ser Ser Ala Ser Ser Ser Ser Ala Asp Ile Val Met Thr  
                   115                                  120                                  125  
 Gln Ala Ala Phe Ser Asn Pro Val Thr Leu Gly Thr Ser Ala Ser Ile  
                   130                                  135                                  140  
 Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser Asn Gly Ile Thr Tyr  
                   145                                  150                                  155                                  160  
 Phe Phe Trp Tyr Leu Gln Lys Pro Gly Leu Ser Pro Gln Leu Leu Ile  
                                   165                                  170                                  175  
 Tyr Gln Met Ser Asn Leu Ala Ser Gly Val Pro Asp Arg Phe Ser Ser  
                   180                                  185                                  190  
 Ser Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile Ser Arg Val Glu Ala  
                   195                                  200                                  205  
 Glu Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn Leu Glu Leu Pro Pro  
                   210                                  215                                  220  
 Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala Ala Ala His  
                   225                                  230                                  235                                  240  
 His His His His His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu  
                                   245                                  250                                  255  
 Asp Leu Asn Gly Ala Ala  
                   260

<210> 53

<211> 261

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
single chain Fv format

&lt;400&gt; 53

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15  
 Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr  
 20 25 30  
 Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
 35 40 45  
 Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu  
 50 55 60  
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser  
 65 70 75 80  
 Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr  
 85 90 95  
 Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr  
 100 105 110  
 Leu Thr Val Ser Ser Ala Ser Ser Ser Ala Asp Ile Val Met Thr Gln  
 115 120 125  
 Ala Ala Phe Ser Asn Pro Val Thr Leu Gly Thr Ser Ala Ser Ile Ser  
 130 135 140  
 Cys Arg Ser Ser Lys Ser Leu Leu His Ser Asn Gly Ile Thr Tyr Phe  
 145 150 155 160  
 Phe Trp Tyr Leu Gln Lys Pro Gly Leu Ser Pro Gln Leu Leu Ile Tyr  
 165 170 175  
 Gln Met Ser Asn Leu Ala Ser Gly Val Pro Asp Arg Phe Ser Ser Ser  
 180 185 190  
 Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile Ser Arg Val Glu Ala Glu  
 195 200 205  
 Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn Leu Glu Leu Pro Pro Thr  
 210 215 220  
 Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala Ala Ala His His  
 225 230 235 240  
 His His His His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp  
 245 250 255  
 Leu Asn Gly Ala Ala  
 260

&lt;210&gt; 54

&lt;211&gt; 260

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic single chain Fv format

<400> 54

[illegible]

```
<210> 55
<211> 259
<212> PRT
<213> Artificial Sequence
```

<220>  
<223> Description of Artificial Sequence: Synthetic  
single chain Fv format

<400> 55																
Glu	Val	Lys	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro	Gly	Gly	
1				5					10					15		
Ser	Met	Lys	Leu	Ser	Cys	Val	Ala	Ser	Gly	Phe	Thr	Phe	Ser	Asn	Tyr	
			20					25					30			
Trp	Met	Asn	Trp	Val	Arg	Gln	Ser	Pro	Glu	Lys	Gly	Leu	Glu	Trp	Val	
		35					40					45				
Ala	Glu	Ile	Arg	Leu	Lys	Ser	Asn	Asn	Tyr	Thr	Thr	His	Tyr	Ala	Glu	
	50					55					60					
Ser	Val	Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Asp	Ser	Lys	Ser	Ser	
65					70					75					80	
Val	Ser	Leu	Gln	Met	Asn	Asn	Leu	Arg	Val	Glu	Asp	Thr	Gly	Ile	Tyr	
				85					90					95		
Tyr	Cys	Thr	Arg	His	Tyr	Tyr	Phe	Asp	Tyr	Trp	Gly	Gln	Gly	Thr	Thr	
			100					105					110			
Leu	Thr	Val	Ser	Ser	Ala	Ser	Ala	Asp	Ile	Val	Met	Thr	Gln	Ala	Ala	
		115					120					125				
Phe	Ser	Asn	Pro	Val	Thr	Leu	Gly	Thr	Ser	Ala	Ser	Ile	Ser	Cys	Arg	
	130					135					140					
Ser	Ser	Lys	Ser	Leu	Leu	His	Ser	Asn	Gly	Ile	Thr	Tyr	Phe	Phe	Trp	
145					150					155					160	
Tyr	Leu	Gln	Lys	Pro	Gly	Leu	Ser	Pro	Gln	Leu	Leu	Ile	Tyr	Gln	Met	
				165					170					175		
Ser	Asn	Leu	Ala	Ser	Gly	Val	Pro	Asp	Arg	Phe	Ser	Ser	Ser	Gly	Ser	
			180					185					190			
Gly	Thr	Asp	Phe	Thr	Leu	Arg	Ile	Ser	Arg	Val	Glu	Ala	Glu	Asp	Val	
		195					200					205				
Gly	Val	Tyr	Tyr	Cys	Ala	Gln	Asn	Leu	Glu	Leu	Pro	Pro	Thr	Phe	Gly	
	210					215					220					
Gly	Gly	Thr	Lys	Leu	Glu	Ile	Lys	Arg	Ala	Ala	Ala	His	His	His	His	
225					230					235					240	
His	His	Gly	Ala	Ala	Glu	Gln	Lys	Leu	Ile	Ser	Glu	Glu	Asp	Leu	Asn	
				245					250					255		



```
<210> 56
<211> 258
<212> PRT
<213> Artificial Sequence
```

<220>  
<223> Description of Artificial Sequence: Synthetic  
single chain Fv format

<400> 56																	
Glu	Val	Lys	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro	Gly	Gly		
1				5					10					15			
Ser	Met	Lys	Leu	Ser	Cys	Val	Ala	Ser	Gly	Phe	Thr	Phe	Ser	Asn	Tyr		
			20					25					30				
Trp	Met	Asn	Trp	Val	Arg	Gln	Ser	Pro	Glu	Lys	Gly	Leu	Glu	Trp	Val		
		35					40					45					
Ala	Glu	Ile	Arg	Leu	Lys	Ser	Asn	Asn	Tyr	Thr	Thr	His	Tyr	Ala	Glu		
	50					55					60						
Ser	Val	Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Asp	Ser	Lys	Ser	Ser		
65					70					75					80		
Val	Ser	Leu	Gln	Met	Asn	Asn	Leu	Arg	Val	Glu	Asp	Thr	Gly	Ile	Tyr		
				85					90					95			
Tyr	Cys	Thr	Arg	His	Tyr	Tyr	Phe	Asp	Tyr	Trp	Gly	Gln	Gly	Thr	Thr		
			100					105					110				
Leu	Thr	Val	Ser	Ser	Ala	Ala	Asp	Ile	Val	Met	Thr	Gln	Ala	Ala	Phe		
		115					120					125					
Ser	Asn	Pro	Val	Thr	Leu	Gly	Thr	Ser	Ala	Ser	Ile	Ser	Cys	Arg	Ser		
	130					135					140						
Ser	Lys	Ser	Leu	Leu	His	Ser	Asn	Gly	Ile	Thr	Tyr	Phe	Phe	Trp	Tyr		
145					150					155					160		
Leu	Gln	Lys	Pro	Gly	Leu	Ser	Pro	Gln	Leu	Leu	Ile	Tyr	Gln	Met	Ser		
				165					170					175			
Asn	Leu	Ala	Ser	Gly	Val	Pro	Asp	Arg	Phe	Ser	Ser	Ser	Gly	Ser	Gly		
			180					185					190				
Thr	Asp	Phe	Thr	Leu	Arg	Ile	Ser	Arg	Val	Glu	Ala	Glu	Asp	Val	Gly		
	195						200					205					
Val	Tyr	Tyr	Cys	Ala	Gln	Asn	Leu	Glu	Leu	Pro	Pro	Thr	Phe	Gly	Gly		
	210					215					220						
Gly	Thr	Lys	Leu	Glu	Ile	Lys	Arg	Ala	Ala	Ala	His	His	His	His	His		
225					230					235							240

His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Gly  
 245 250 255

Ala Ala

<210> 57

<211> 257

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 single chain Fv format

<400> 57

Glu	Val	Lys	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro	Gly	Gly		
1				5					10					15			
Ser	Met	Lys	Leu	Ser	Cys	Val	Ala	Ser	Gly	Phe	Thr	Phe	Ser	Asn	Tyr		
			20					25					30				
Trp	Met	Asn	Trp	Val	Arg	Gln	Ser	Pro	Glu	Lys	Gly	Leu	Glu	Trp	Val		
		35					40					45					
Ala	Glu	Ile	Arg	Leu	Lys	Ser	Asn	Asn	Tyr	Thr	Thr	His	Tyr	Ala	Glu		
	50					55					60						
Ser	Val	Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Asp	Ser	Lys	Ser	Ser		
65				70					75						80		
Val	Ser	Leu	Gln	Met	Asn	Asn	Leu	Arg	Val	Glu	Asp	Thr	Gly	Ile	Tyr		
			85					90						95			
Tyr	Cys	Thr	Arg	His	Tyr	Tyr	Phe	Asp	Tyr	Trp	Gly	Gln	Gly	Thr	Thr		
			100					105					110				
Leu	Thr	Val	Ser	Ser	Ala	Asp	Ile	Val	Met	Thr	Gln	Ala	Ala	Phe	Ser		
		115				120						125					
Asn	Pro	Val	Thr	Leu	Gly	Thr	Ser	Ala	Ser	Ile	Ser	Cys	Arg	Ser	Ser		
	130					135					140						
Lys	Ser	Leu	Leu	His	Ser	Asn	Gly	Ile	Thr	Tyr	Phe	Phe	Trp	Tyr	Leu		
145				150						155					160		
Gln	Lys	Pro	Gly	Leu	Ser	Pro	Gln	Leu	Leu	Ile	Tyr	Gln	Met	Ser	Asn		
			165					170					175				
Leu	Ala	Ser	Gly	Val	Pro	Asp	Arg	Phe	Ser	Ser	Ser	Gly	Ser	Gly	Thr		
		180					185						190				
Asp	Phe	Thr	Leu	Arg	Ile	Ser	Arg	Val	Glu	Ala	Glu	Asp	Val	Gly	Val		
		195					200					205					

Tyr Tyr Cys Ala Gln Asn Leu Glu Leu Pro Pro Thr Phe Gly Gly Gly  
 210 215 220

Thr Lys Leu Glu Ile Lys Arg Ala Ala Ala His His His His His His  
 225 230 235 240

Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Gly Ala  
 245 250 255

Ala

<210> 58

<211> 256

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 single chain Fv format

<400> 58

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15

Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr  
 20 25 30

Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
 35 40 45

Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu  
 50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser  
 65 70 75 80

Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr  
 85 90 95

Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr  
 100 105 110

Leu Thr Val Ser Ser Asp Ile Val Met Thr Gln Ala Ala Phe Ser Asn  
 115 120 125

Pro Val Thr Leu Gly Thr Ser Ala Ser Ile Ser Cys Arg Ser Ser Lys  
 130 135 140

Ser Leu Leu His Ser Asn Gly Ile Thr Tyr Phe Phe Trp Tyr Leu Gln  
 145 150 155 160

Lys Pro Gly Leu Ser Pro Gln Leu Leu Ile Tyr Gln Met Ser Asn Leu  
 165 170 175

Ala Ser Gly Val Pro Asp Arg Phe Ser Ser Ser Gly Ser Gly Thr Asp  
 180 185 190

Phe Thr Leu Arg Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr  
 195 200 205  
 Tyr Cys Ala Gln Asn Leu Glu Leu Pro Pro Thr Phe Gly Gly Gly Thr  
 210 215 220  
 Lys Leu Glu Ile Lys Arg Ala Ala Ala His His His His His His Gly  
 225 230 235 240  
 Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Gly Ala Ala  
 245 250 255

<210> 59

<211> 255

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
single chain Fv format

<400> 59

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15  
 Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr  
 20 25 30  
 Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
 35 40 45  
 Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu  
 50 55 60  
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser  
 65 70 75 80  
 Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr  
 85 90 95  
 Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr  
 100 105 110  
 Leu Thr Val Ser Asp Ile Val Met Thr Gln Ala Ala Phe Ser Asn Pro  
 115 120 125  
 Val Thr Leu Gly Thr Ser Ala Ser Ile Ser Cys Arg Ser Ser Lys Ser  
 130 135 140  
 Leu Leu His Ser Asn Gly Ile Thr Tyr Phe Phe Trp Tyr Leu Gln Lys  
 145 150 155 160

Pro Gly Leu Ser Pro Gln Leu Leu Ile Tyr Gln Met Ser Asn Leu Ala  
 165 170 175

Ser Gly Val Pro Asp Arg Phe Ser Ser Ser Gly Ser Gly Thr Asp Phe  
 180 185 190

Thr Leu Arg Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr  
 195 200 205

Cys Ala Gln Asn Leu Glu Leu Pro Pro Thr Phe Gly Gly Gly Thr Lys  
 210 215 220

Leu Glu Ile Lys Arg Ala Ala Ala His His His His His His Gly Ala  
 225 230 235 240

Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Gly Ala Ala  
 245 250 255

<210> 60

<211> 219

<212> PRT

<213> Mus musculus

<400> 60

Asp Ile Val Leu Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly  
 1 5 10 15

Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser  
 20 25 30

Asn Gly Asn Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser  
 35 40 45

Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro  
 50 55 60

Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile  
 65 70 75 80

Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly  
 85 90 95

Ser His Val Pro Leu Thr Phe Gly Asp Gly Thr Lys Leu Glu Leu Lys  
 100 105 110

Arg Ala Asp Ala Ala Pro Thr Val Ser Ile Phe Pro Pro Ser Ser Glu  
 115 120 125

Gln Leu Thr Ser Gly Gly Ala Ser Val Val Cys Phe Leu Asn Asn Phe  
 130 135 140

Tyr Pro Lys Asp Ile Asn Val Lys Trp Lys Ile Asp Gly Ser Glu Arg  
 145 150 155 160

Gln Asn Gly Val Leu Asn Ser Trp Thr Asp Gln Asp Ser Lys Asp Ser  
 165 170 175

Thr Tyr Ser Met Ser Ser Thr Leu Thr Leu Thr Lys Asp Glu Tyr Glu  
                   180                  185                  190

Arg His Asn Ser Tyr Thr Cys Glu Ala Thr His Lys Thr Ser Thr Ser  
           195                  200                  205

Pro Ile Val Lys Ser Phe Asn Arg Asn Glu Cys  
       210                  215

<210> 61

<211> 219

<212> PRT

<213> Mus musculus

<400> 61

Asp Ile Val Met Thr Gln Ala Ala Phe Ser Asn Pro Val Thr Leu Gly  
   1                  5                  10                  15

Thr Ser Ala Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser  
           20                  25                  30

Asn Gly Ile Thr Tyr Phe Phe Trp Tyr Leu Gln Lys Pro Gly Leu Ser  
           35                  40                  45

Pro Gln Leu Leu Ile Tyr Gln Met Ser Asn Leu Ala Ser Gly Val Pro  
       50                  55                  60

Asp Arg Phe Ser Ser Ser Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile  
       65                  70                  75                  80

Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn  
           85                  90                  95

Leu Glu Leu Pro Pro Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys  
           100                  105                  110

Arg Ala Asp Ala Ala Pro Thr Val Ser Ile Phe Pro Pro Ser Ser Glu  
           115                  120                  125

Gln Leu Thr Ser Gly Gly Ala Ser Val Val Cys Phe Leu Asn Asn Phe  
       130                  135                  140

Tyr Pro Lys Asp Ile Asn Val Lys Trp Lys Ile Asp Gly Ser Glu Arg  
       145                  150                  155                  160

Gln Asn Gly Val Leu Asn Ser Trp Thr Asp Gln Asp Ser Lys Asp Ser  
           165                  170                  175

Thr Tyr Ser Met Ser Ser Thr Leu Thr Leu Thr Lys Asp Glu Tyr Glu  
           180                  185                  190

Arg His Asn Ser Tyr Thr Cys Glu Ala Thr His Lys Thr Ser Thr Ser  
           195                  200                  205

Pro Ile Val Lys Ser Phe Asn Arg Asn Glu Cys  
       210                  215

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<210> 62
<211> 441
<212> PRT
<213> Mus musculus
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<400> 62	Glu	Val	Lys	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro	Gly	Gly	
1					5					10					15		
Ser	Met	Lys	Leu	Ser	Cys	Ala	Ala	Ser	Gly	Phe	Thr	Phe	Ser	Asp	Ala		
			20					25					30				
Trp	Met	Asp	Trp	Val	Arg	Gln	Ser	Pro	Glu	Lys	Gly	Leu	Glu	Trp	Val		
		35					40					45					
Ala	Glu	Ile	Arg	Ser	Lys	Ala	Asn	Asn	His	Ala	Thr	Tyr	Tyr	Ala	Glu		
	50					55					60						
Ser	Val	Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Val	Ser	Lys	Ser	Ser		
65					70					75					80		
Val	Tyr	Leu	Gln	Met	Asn	Asn	Leu	Arg	Ala	Glu	Asp	Thr	Gly	Ile	Tyr		
				85					.90					95			
Tyr	Cys	Thr	Arg	Gly	Gly	Tyr	Gly	Phe	Asp	Tyr	Trp	Gly	Gln	Gly	Thr		
			100					105					110				
Thr	Leu	Thr	Val	Ser	Ala	Lys	Thr	Thr	Pro	Pro	Ser	Val	Tyr	Pro	Leu		
		115					120					125					
Ala	Pro	Gly	Ser	Ala	Ala	Gln	Thr	Asn	Ser	Met	Val	Thr	Leu	Gly	Cys		
	130					135					140						
Leu	Val	Lys	Gly	Tyr	Phe	Pro	Glu	Pro	Val	Thr	Val	Thr	Trp	Asn	Ser		
145					150					155				160			
Gly	Ser	Leu	Ser	Ser	Gly	Val	His	Thr	Phe	Pro	Ala	Val	Leu	Glu	Ser		
				165					170				175				
Asp	Leu	Tyr	Thr	Leu	Ser	Ser	Ser	Val	Thr	Val	Pro	Ser	Ser	Pro	Arg		
			180					185					190				
Pro	Ser	Glu	Thr	Val	Thr	Cys	Asn	Val	Ala	His	Pro	Ala	Ser	Ser	Thr		
		195					200					205					
Lys	Val	Asp	Lys	Lys	Ile	Val	Pro	Arg	Asp	Cys	Gly	Cys	Lys	Pro	Cys		
	210					215					220						
Ile	Cys	Thr	Val	Pro	Glu	Val	Ser	Ser	Val	Phe	Ile	Phe	Pro	Pro	Lys		
225					230					235					240		
Pro	Lys	Asp	Val	Leu	Thr	Ile	Thr	Leu	Thr	Pro	Lys	Val	Thr	Cys	Val		
				245					250					255			
Val	Val	Asp	Ile	Ser	Lys	Asp	Asp	Pro	Glu	Val	Gln	Phe	Ser	Trp	Phe		
			260					265					270				

Val Asp Asp Val Glu Val His Thr Ala Gln Thr Gln Pro Arg Glu Glu  
 275 280 285  
 Gln Phe Asn Ser Thr Phe Arg Ser Val Ser Glu Leu Pro Ile Met His  
 290 295 300  
 Gln Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg Val Asn Ser Ala  
 305 310 315 320  
 Ala Phe Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly Arg  
 325 330 335  
 Pro Lys Ala Pro Gln Val Tyr Thr Ile Pro Pro Pro Lys Glu Gln Met  
 340 345 350  
 Ala Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr Asp Phe Phe Pro  
 355 360 365  
 Glu Asp Ile Thr Val Glu Trp Gln Trp Asn Gly Gln Pro Ala Glu Asn  
 370 375 380  
 Tyr Lys Asn Thr Gln Pro Ile Met Asn Thr Asn Gly Ser Tyr Phe Val  
 385 390 395 400  
 Tyr Ser Lys Leu Asn Val Gln Lys Ser Asn Trp Glu Ala Gly Asn Thr  
 405 410 415  
 Phe Thr Cys Ser Val Leu His Glu Gly Leu His Asn His His Thr Glu  
 420 425 430  
 Lys Ser Leu Ser His Ser Pro Gly Lys  
 435 440

<210> 63  
 <211> 440  
 <212> PRT  
 <213> Mus musculus

<400> 63  
 Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15  
 Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr  
 20 25 30  
 Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
 35 40 45  
 Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu  
 50 55 60  
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser  
 65 70 75 80  
 Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr  
 85 90 95



Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr  
 100 105 110  
 Leu Thr Val Ser Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro Leu Ala  
 115 120 125  
 Pro Gly Ser Ala Ala Gln Thr Asn Ser Met Val Thr Leu Gly Cys Leu  
 130 135 140  
 Val Lys Gly Tyr Phe Pro Glu Pro Val Thr Val Thr Trp Asn Ser Gly  
 145 150 155 160  
 Ser Leu Ser Ser Gly Val His Thr Phe Pro Ala Val Leu Glu Ser Asp  
 165 170 175  
 Leu Tyr Thr Leu Ser Ser Ser Val Thr Val Pro Ser Ser Pro Arg Pro  
 180 185 190  
 Ser Glu Thr Val Thr Cys Asn Val Ala His Pro Ala Ser Ser Thr Lys  
 195 200 205  
 Val Asp Lys Lys Ile Val Pro Arg Asp Cys Gly Cys Lys Pro Cys Ile  
 210 215 220  
 Cys Thr Val Pro Glu Val Ser Ser Val Phe Ile Phe Pro Pro Lys Pro  
 225 230 235 240  
 Lys Asp Val Leu Thr Ile Thr Leu Thr Pro Lys Val Thr Cys Val Val  
 245 250 255  
 Val Asp Ile Ser Lys Asp Asp Pro Glu Val Gln Phe Ser Trp Phe Val  
 260 265 270  
 Asp Asp Val Glu Val His Thr Ala Gln Thr Gln Pro Arg Glu Glu Gln  
 275 280 285  
 Phe Asn Ser Thr Phe Arg Ser Val Ser Glu Leu Pro Ile Met His Gln  
 290 295 300  
 Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg Val Asn Ser Ala Ala  
 305 310 315 320  
 Phe Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly Arg Pro  
 325 330 335  
 Lys Ala Pro Gln Val Tyr Thr Ile Pro Pro Pro Lys Glu Gln Met Ala  
 340 345 350  
 Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr Asp Phe Phe Pro Glu  
 355 360 365  
 Asp Ile Thr Val Glu Trp Gln Trp Asn Gly Gln Pro Ala Glu Asn Tyr  
 370 375 380  
 Lys Asn Thr Gln Pro Ile Met Asn Thr Asn Gly Ser Tyr Phe Val Tyr  
 385 390 395 400

Ser Lys Leu Asn Val Gln Lys Ser Asn Trp Glu Ala Gly Asn Thr Phe  
 405 410 415

Thr Cys Ser Val Leu His Glu Gly Leu His Asn His His Thr Glu Lys  
 420 425 430

Ser Leu Ser His Ser Pro Gly Lys  
 435 440

<210> 64

<211> 447

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 mouse/human chimeric heavy chain

<400> 64

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15

Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala  
 20 25 30

Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
 35 40 45

Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu  
 50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser  
 65 70 75 80

Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr  
 85 90 95

Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr  
 100 105 110

Thr Leu Thr Val Ser Gly Ser Thr Lys Gly Pro Ser Val Phe Pro Leu  
 115 120 125

Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys  
 130 135 140

Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser  
 145 150 155 160

Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser  
 165 170 175

Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser  
 180 185 190

Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn  
 195 200 205

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Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His
210                               215               220

Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val
225                               230               235               240

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
                               245               250               255

Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu
                               260               265               270

Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
275                               280               285

Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser
290                               295               300

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
305                               310               315               320

Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile
                               325               330               335

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
                               340               345               350

Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
                               355               360               365

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
370                               375               380

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
385                               390               395               400

Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg
                               405               410               415

Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
                               420               425               430

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
435                               440               445

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<210> 65

<211> 446

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
mouse/human chimeric heavy chain

&lt;400&gt; 65

Glu	Val	Lys	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro	Gly	Gly	1	5	10	15
Ser	Met	Lys	Leu	Ser	Cys	Val	Ala	Ser	Gly	Phe	Thr	Phe	Ser	Asn	Tyr	20	25	30	
Trp	Met	Asn	Trp	Val	Arg	Gln	Ser	Pro	Glu	Lys	Gly	Leu	Glu	Trp	Val	35	40	45	
Ala	Glu	Ile	Arg	Leu	Lys	Ser	Asn	Asn	Tyr	Thr	Thr	His	Tyr	Ala	Glu	50	55	60	
Ser	Val	Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Asp	Ser	Lys	Ser	Ser	65	70	75	80
Val	Ser	Leu	Gln	Met	Asn	Asn	Leu	Arg	Val	Glu	Asp	Thr	Gly	Ile	Tyr	85	90	95	
Tyr	Cys	Thr	Arg	His	Tyr	Tyr	Phe	Asp	Tyr	Trp	Gly	Gln	Gly	Thr	Thr	100	105	110	
Leu	Thr	Val	Ser	Gly	Ser	Thr	Lys	Gly	Pro	Ser	Val	Phe	Pro	Leu	Ala	115	120	125	
Pro	Ser	Ser	Lys	Ser	Thr	Ser	Gly	Gly	Thr	Ala	Ala	Leu	Gly	Cys	Leu	130	135	140	
Val	Lys	Asp	Tyr	Phe	Pro	Glu	Pro	Val	Thr	Val	Ser	Trp	Asn	Ser	Gly	145	150	155	160
Ala	Leu	Thr	Ser	Gly	Val	His	Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	Ser	165	170	175	
Gly	Leu	Tyr	Ser	Leu	Ser	Ser	Val	Val	Thr	Val	Pro	Ser	Ser	Ser	Leu	180	185	190	
Gly	Thr	Gln	Thr	Tyr	Ile	Cys	Asn	Val	Asn	His	Lys	Pro	Ser	Asn	Thr	195	200	205	
Lys	Val	Asp	Lys	Lys	Val	Glu	Pro	Lys	Ser	Cys	Asp	Lys	Thr	His	Thr	210	215	220	
Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Leu	Leu	Gly	Gly	Pro	Ser	Val	Phe	225	230	235	240
Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	245	250	255	
Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val	Ser	His	Glu	Asp	Pro	Glu	Val	260	265	270	
Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val	Glu	Val	His	Asn	Ala	Lys	Thr	275	280	285	
Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	Val	290	295	300	

Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys  
 305 310 315 320  
 Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser  
 325 330 335  
 Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro  
 340 345 350  
 Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val  
 355 360 365  
 Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly  
 370 375 380  
 Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp  
 385 390 395 400  
 Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp  
 405 410 415  
 Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His  
 420 425 430  
 Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys  
 435 440 445

<210> 66

<211> 570

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
mouse/human chimeric heavy chain

<400> 66

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15  
 Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala  
 20 25 30  
 Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
 35 40 45  
 Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu  
 50 55 60  
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser  
 65 70 75 80  
 Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr  
 85 90 95  
 Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr  
 100 105 110

Thr Leu Thr Val Ser Gly Ser Ala Ser Ala Pro Thr Leu Phe Pro Leu  
 115 120 125  
 Val Ser Cys Glu Asn Ser Pro Ser Asp Thr Ser Ser Val Ala Val Gly  
 130 135 140  
 Cys Leu Ala Gln Asp Phe Leu Pro Asp Ser Ile Thr Leu Ser Trp Lys  
 145 150 155 160  
 Tyr Lys Asn Asn Ser Asp Ile Ser Ser Thr Arg Gly Phe Pro Ser Val  
 165 170 175  
 Leu Arg Gly Gly Lys Tyr Ala Ala Thr Ser Gln Val Leu Leu Pro Ser  
 180 185 190  
 Lys Asp Val Met Gln Gly Thr Asp Glu His Val Val Cys Lys Val Gln  
 195 200 205  
 His Pro Asn Gly Asn Lys Glu Lys Asn Val Pro Leu Pro Val Ile Ala  
 210 215 220  
 Glu Leu Pro Pro Lys Val Ser Val Phe Val Pro Pro Arg Asp Gly Phe  
 225 230 235 240  
 Phe Gly Asn Pro Arg Lys Ser Lys Leu Ile Cys Gln Ala Thr Gly Phe  
 245 250 255  
 Ser Pro Arg Gln Ile Gln Val Ser Trp Leu Arg Glu Gly Lys Gln Val  
 260 265 270  
 Gly Ser Gly Val Thr Thr Asp Gln Val Gln Ala Glu Ala Lys Glu Ser  
 275 280 285  
 Gly Pro Thr Thr Tyr Lys Val Thr Ser Thr Leu Thr Ile Lys Glu Ser  
 290 295 300  
 Asp Trp Leu Gly Gln Ser Met Phe Thr Cys Arg Val Asp His Arg Gly  
 305 310 315 320  
 Leu Thr Phe Gln Gln Asn Ala Ser Ser Met Cys Val Pro Asp Gln Asp  
 325 330 335  
 Thr Ala Ile Arg Val Phe Ala Ile Pro Pro Ser Phe Ala Ser Ile Phe  
 340 345 350  
 Leu Thr Lys Ser Thr Lys Leu Thr Cys Leu Val Thr Asp Leu Thr Thr  
 355 360 365  
 Tyr Asp Ser Val Thr Ile Ser Trp Thr Arg Gln Asn Gly Glu Ala Val  
 370 375 380  
 Lys Thr His Thr Asn Ile Ser Glu Ser His Pro Asn Ala Thr Phe Ser  
 385 390 395 400  
 Ala Val Gly Glu Ala Ser Ile Cys Glu Asp Asp Trp Asn Ser Gly Glu  
 405 410 415

Arg Phe Thr Cys Thr Val Thr His Thr Asp Leu Pro Ser Pro Leu Lys  
                     420                    425                    430  
 Gln Thr Ile Ser Arg Pro Lys Gly Val Ala Leu His Arg Pro Asp Val  
                     435                    440                    445  
 Tyr Leu Leu Pro Pro Ala Arg Glu Gln Leu Asn Leu Arg Glu Ser Ala  
                     450                    455                    460  
 Thr Ile Thr Cys Leu Val Thr Gly Phe Ser Pro Ala Asp Val Phe Val  
                     465                    470                    475                    480  
 Gln Trp Met Gln Arg Gly Gln Pro Leu Ser Pro Glu Lys Tyr Val Thr  
                     485                    490                    495  
 Ser Ala Pro Met Pro Glu Pro Gln Ala Pro Gly Arg Tyr Phe Ala His  
                     500                    505                    510  
 Ser Ile Leu Thr Val Ser Glu Glu Glu Trp Asn Thr Gly Glu Thr Tyr  
                     515                    520                    525  
 Thr Cys Val Val Ala His Glu Ala Leu Pro Asn Arg Val Thr Glu Arg  
                     530                    535                    540  
 Thr Val Asp Lys Ser Thr Gly Lys Pro Thr Leu Tyr Asn Val Ser Leu  
                     545                    550                    555                    560  
 Val Met Ser Asp Thr Ala Gly Thr Cys Tyr  
                     565                    570

&lt;210&gt; 67

&lt;211&gt; 569

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

 <223> Description of Artificial Sequence: Synthetic  
 mouse/human chimeric heavy chain

&lt;400&gt; 67

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
   1                    5                    10                    15  
 Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr  
                     20                    25                    30  
 Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
                     35                    40                    45  
 Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu  
                     50                    55                    60  
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser  
                     65                    70                    75                    80  
 Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr  
                     85                    90                    95

Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr  
 100 105 110  
 Leu Thr Val Ser Gly Ser Ala Ser Ala Pro Thr Leu Phe Pro Leu Val  
 115 120 125  
 Ser Cys Glu Asn Ser Pro Ser Asp Thr Ser Ser Val Ala Val Gly Cys  
 130 135 140  
 Leu Ala Gln Asp Phe Leu Pro Asp Ser Ile Thr Leu Ser Trp Lys Tyr  
 145 150 155 160  
 Lys Asn Asn Ser Asp Ile Ser Ser Thr Arg Gly Phe Pro Ser Val Leu  
 165 170 175  
 Arg Gly Gly Lys Tyr Ala Ala Thr Ser Gln Val Leu Leu Pro Ser Lys  
 180 185 190  
 Asp Val Met Gln Gly Thr Asp Glu His Val Val Cys Lys Val Gln His  
 195 200 205  
 Pro Asn Gly Asn Lys Glu Lys Asn Val Pro Leu Pro Val Ile Ala Glu  
 210 215 220  
 Leu Pro Pro Lys Val Ser Val Phe Val Pro Pro Arg Asp Gly Phe Phe  
 225 230 235 240  
 Gly Asn Pro Arg Lys Ser Lys Leu Ile Cys Gln Ala Thr Gly Phe Ser  
 245 250 255  
 Pro Arg Gln Ile Gln Val Ser Trp Leu Arg Glu Gly Lys Gln Val Gly  
 260 265 270  
 Ser Gly Val Thr Thr Asp Gln Val Gln Ala Glu Ala Lys Glu Ser Gly  
 275 280 285  
 Pro Thr Thr Tyr Lys Val Thr Ser Thr Leu Thr Ile Lys Glu Ser Asp  
 290 295 300  
 Trp Leu Gly Gln Ser Met Phe Thr Cys Arg Val Asp His Arg Gly Leu  
 305 310 315 320  
 Thr Phe Gln Gln Asn Ala Ser Ser Met Cys Val Pro Asp Gln Asp Thr  
 325 330 335  
 Ala Ile Arg Val Phe Ala Ile Pro Pro Ser Phe Ala Ser Ile Phe Leu  
 340 345 350  
 Thr Lys Ser Thr Lys Leu Thr Cys Leu Val Thr Asp Leu Thr Thr Tyr  
 355 360 365  
 Asp Ser Val Thr Ile Ser Trp Thr Arg Gln Asn Gly Glu Ala Val Lys  
 370 375 380  
 Thr His Thr Asn Ile Ser Glu Ser His Pro Asn Ala Thr Phe Ser Ala  
 385 390 395 400



Val	Gly	Glu	Ala	Ser 405	Ile	Cys	Glu	Asp	Asp 410	Trp	Asn	Ser	Gly	Glu 415	Arg
Phe	Thr	Cys	Thr	Val 420	Thr	His	Thr	Asp 425	Leu	Pro	Ser	Pro	Leu 430	Lys	Gln
Thr	Ile	Ser	Arg	Pro 435	Lys	Gly	Val 440	Ala	Leu	His	Arg	Pro 445	Asp	Val	Tyr
Leu	Leu	Pro	Pro	Ala 450	Arg	Glu 455	Gln	Leu	Asn	Leu	Arg 460	Glu	Ser	Ala	Thr
Ile 465	Thr	Cys	Leu	Val 470	Thr	Gly	Phe	Ser	Pro 475	Ala	Asp	Val	Phe	Val 480	Gln
Trp	Met	Gln	Arg	Gly 485	Gln	Pro	Leu	Ser	Pro 490	Glu	Lys	Tyr	Val 495	Thr	Ser
Ala	Pro	Met	Pro 500	Glu	Pro	Gln	Ala 505	Pro	Gly	Arg	Tyr	Phe 510	Ala	His	Ser
Ile	Leu	Thr 515	Val	Ser	Glu	Glu 520	Glu	Trp	Asn	Thr	Gly 525	Glu	Thr	Tyr	Thr
Cys	Val 530	Val	Ala	His	Glu 535	Ala	Leu	Pro	Asn	Arg 540	Val	Thr	Glu	Arg	Thr
Val 545	Asp	Lys	Ser	Thr	Gly 550	Lys	Pro	Thr	Leu 555	Tyr	Asn	Val	Ser	Leu 560	Val
Met	Ser	Asp	Thr 565	Ala	Gly	Thr	Cys	Tyr							

<210> 68

<211> 219

<212> PRT

<213> Artificial Sequence

 $\langle 220 \rangle$ 

<223> Description of Artificial Sequence: Synthetic mouse/human chimeric light chain

<400> 68

Asp Ile Val Leu Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly  
1 5 10 15

Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser  
20 25 30

Asn Gly Asn Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser  
35 40 45

Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro  
50 55 60

Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile  
65 70 75 80

Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly  
85 90 95

Ser His Val Pro Leu Thr Phe Gly Asp Gly Thr Lys Leu Glu Leu Lys  
100 105 110

Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu  
115 120 125

Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe  
130 135 140

Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln  
145 150 155 160

Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser  
165 170 175

Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu  
180 185 190

Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser  
195 200 205

Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys  
210 215

<210> 69

<211> 219

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
mouse/human chimeric light chain

<400> 69

Asp Ile Val Met Thr Gln Ala Ala Phe Ser Asn Pro Val Thr Leu Gly  
1 5 10 15

Thr Ser Ala Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser  
20 25 30

Asn Gly Ile Thr Tyr Phe Phe Trp Tyr Leu Gln Lys Pro Gly Leu Ser  
35 40 45

Pro Gln Leu Leu Ile Tyr Gln Met Ser Asn Leu Ala Ser Gly Val Pro  
50 55 60

Asp Arg Phe Ser Ser Ser Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile  
65 70 75 80

Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn  
85 90 95

Leu Glu Leu Pro Pro Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys  
                   100                  105                  110

Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu  
           115                  120                  125

Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe  
       130                  135                  140

Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln  
   145                  150                  155                  160

Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser  
                   165                  170                  175

Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu  
           180                  185                  190

Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser  
           195                  200                  205

Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys  
       210                  215

<210> 70

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
       peptide

<400> 70

Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala  
   1                  5                  10                  15

Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala  
           20                  25                  30

<210> 71

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
       peptide

<220>

<221> MOD\_RES

<222> (13)

<223> Thr(GalNAc-alpha)

&lt;400&gt; 71

Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala  
 1 5 10 15

Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala  
 20 25 30

&lt;210&gt; 72

&lt;211&gt; 100

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 peptide

&lt;220&gt;

&lt;221&gt; MOD\_RES

&lt;222&gt; (21)..(60)

&lt;223&gt; region may or may not be present

&lt;220&gt;

&lt;221&gt; MOD\_RES

&lt;222&gt; (61)..(100)

&lt;223&gt; region may or may not be present

&lt;400&gt; 72

Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro  
 1 5 10 15

Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly  
 20 25 30

Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg  
 35 40 45

Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala  
 50 55 60

Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly  
 65 70 75 80

Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro  
 85 90 95

Pro Ala His Gly  
 100

&lt;210&gt; 73

&lt;211&gt; 101

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 peptide

<220>  
 <221> MOD\_RES  
 <222> (10)  
 <223> Thr(GalNAc-alpha)

<220>  
 <221> MOD\_RES  
 <222> (22)..(61)  
 <223> region may or may not be present

<220>  
 <221> MOD\_RES  
 <222> (30)  
 <223> Thr(GalNAc-alpha), if present

<220>  
 <221> MOD\_RES  
 <222> (50)  
 <223> Thr(GalNAc-alpha), if present

<220>  
 <221> MOD\_RES  
 <222> (62)..(101)  
 <223> region may or may not be present

<220>  
 <221> MOD\_RES  
 <222> (70)  
 <223> Thr(GalNAc-alpha), if present

<220>  
 <221> MOD\_RES  
 <222> (90)  
 <223> Thr(GalNAc-alpha), if present

<400> 73  
 Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser  
   1                  5                  10                  15  
 Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro  
           20                  25                  30  
 Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro  
           35                  40                  45  
 Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val  
   50                  55                  60  
 Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro  
   65                  70                  75                  80  
 Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser  
           85                  90                  95  
 Thr Ala Pro Pro Ala  
           100

<210> 74  
 <211> 29  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 peptide

<400> 74  
 Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala  
           1                  5                  10                  15  
 Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser  
                           20                          25

<210> 75  
 <211> 27  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 75  
 aattggatcc gagcccagac actggac

27

<210> 76  
 <211> 27  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 76  
 accgtctaga cgcactcatt taccgcg

27

<210> 77  
 <211> 30  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 77  
 acctggatcc gctaggaaga aactcaaaac

30

<210> 78  
 <211> 30  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 78  
 accgtctaga ccctctaaca ctctcccctg

30

<210> 79  
 <211> 28  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 79  
 atcgggatcc gatagccatg acagtctg

28

<210> 80  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 80  
 agcgtctaga cagggtcagt agcagg

26

<210> 81  
 <211> 5  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 peptide

<400> 81  
 Pro Asp Thr Arg Pro  
 1 5

<210> 82  
 <211> 118  
 <212> PRT  
 <213> Artificial Sequence

)

<220>  
<223> Description of Artificial Sequence: Synthetic  
variable heavy chain construct

<220>  
<221> MOD\_RES  
<222> (23)  
<223> Ala or Val

<220>  
<221> MOD\_RES  
<222> (24)  
<223> Ala, Val, Ser, or Thr

<220>  
<221> MOD\_RES  
<222> (27)  
<223> Tyr, Phe, Ser, or Asp

<220>  
<221> MOD\_RES  
<222> (29)  
<223> Phe, Leu, or Ile

<220>  
<221> MOD\_RES  
<222> (31)..(35)  
<223> this region may encompass either SEQ ID NO: 1, SEQ ID  
NO: 2, or variants thereof

<220>  
<221> MOD\_RES  
<222> (50)..(68)  
<223> this region may encompass either SEQ ID NO: 3, SEQ ID  
NO: 4, or variants thereof

<220>  
<221> MOD\_RES  
<222> (76)  
<223> Asp or Val

<220>  
<221> MOD\_RES  
<222> (82)  
<223> Tyr or Ser

<220>  
<221> MOD\_RES  
<222> (90)  
<223> Ala or Val

<220>  
<221> MOD\_RES  
<222> (100)  
<223> Arg, Gly, Asn, Lys, or Ser



<220>  
 <221> MOD\_RES  
 <222> (101)..(106)  
 <223> this region may encompass either residues 1-6 of  
 SEQ ID NO: 5, SEQ ID NO: 6, or variants thereof

<220>  
 <221> MOD\_RES  
 <222> (107)  
 <223> Tyr or not present

<220>  
 <221> MOD\_RES  
 <222> (118)  
 <223> Ser or Ala

<400> 82  
 Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15  
 Ser Met Lys Leu Ser Cys Xaa Xaa Ser Gly Xaa Thr Xaa Ser Xaa Xaa  
 20 25 30  
 Xaa Xaa Xaa Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
 35 40 45  
 Ala Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa  
 50 55 60  
 Xaa Xaa Xaa Xaa Arg Phe Thr Ile Ser Arg Asp Xaa Ser Lys Ser Ser  
 65 70 75 80  
 Val Xaa Leu Gln Met Asn Asn Leu Arg Xaa Glu Asp Thr Gly Ile Tyr  
 85 90 95  
 Tyr Cys Thr Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Trp Gly Gln Gly Thr  
 100 105 110  
 Thr Leu Thr Val Ser Xaa  
 115

<210> 83  
 <211> 114  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 variable light chain construct

<220>  
 <221> MOD\_RES  
 <222> (2)  
 <223> Ile, Val, or Leu

<220>  
<221> MOD\_RES  
<222> (4)  
<223> Met or Leu

<220>  
<221> MOD\_RES  
<222> (7)  
<223> Thr or Ala

<220>  
<221> MOD\_RES  
<222> (8)  
<223> Pro or Ala

<220>  
<221> MOD\_RES  
<222> (9)  
<223> Leu or Phe

<220>  
<221> MOD\_RES  
<222> (11)  
<223> Leu or Asn

<220>  
<221> MOD\_RES  
<222> (14)  
<223> Ser or Thr

<220>  
<221> MOD\_RES  
<222> (17)  
<223> Asp or Thr

<220>  
<221> MOD\_RES  
<222> (18)  
<223> Gln or Ser

<220>  
<221> MOD\_RES  
<222> (24)..(39)  
<223> this region may encompass either SEQ ID NO: 7, SEQ ID  
NO: 8, or variants thereof

<220>  
<221> MOD\_RES  
<222> (47)  
<223> Gln or Leu

<220>  
<221> MOD\_RES  
<222> (50)  
<223> Lys or Gln

<220>  
 <221> MOD\_RES  
 <222> (53)  
 <223> Ile or Val

<220>  
 <221> MOD\_RES  
 <222> (55)..(61)  
 <223> this region may encompass either SEQ ID NO: 9, SEQ ID  
 NO: 10, or variants thereof

<220>  
 <221> MOD\_RES  
 <222> (69)  
 <223> Gly or Ser

<220>  
 <221> MOD\_RES  
 <222> (79)  
 <223> Lys or Arg

<220>  
 <221> MOD\_RES  
 <222> (88)  
 <223> Leu or Val

<220>  
 <221> MOD\_RES  
 <222> (94)..(102)  
 <223> this region may encompass either SEQ ID NO: 11, SEQ ID  
 NO: 12, or variants thereof

<220>  
 <221> MOD\_RES  
 <222> (105)  
 <223> Gly or Asp

<220>  
 <221> MOD\_RES  
 <222> (111)  
 <223> Ile or Leu

<400> 83  
 Asp Xaa Val Xaa Thr Gln Xaa Xaa Xaa Ser Xaa Pro Val Xaa Leu Gly  
     1                    5                    10                    15  
 Xaa Xaa Ala Ser Ile Ser Cys Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa  
                     20                    25                    30  
 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Trp Tyr Leu Gln Lys Pro Gly Xaa Ser  
                     35                    40                    45  
 Pro Xaa Leu Leu Xaa Tyr Xaa Xaa Xaa Xaa Xaa Xaa Gly Val Pro  
                     50                    55                    60  
 Asp Arg Phe Ser Xaa Ser Gly Ser Gly Thr Asp Phe Thr Leu Xaa Ile  
     65                    70                    75                    80

Ser Arg Val Glu Ala Glu Asp Xaa Gly Val Tyr Tyr Cys Xaa Xaa Xaa  
                   85                  90                  95

Xaa Xaa Xaa Xaa Xaa Xaa Phe Gly Xaa Gly Thr Lys Leu Glu Xaa Lys  
                   100                  105                  110

Arg Ala

<210> 84

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
           antibody framework heavy chain sequence

<220>

<221> MOD\_RES

<222> (23)

<223> Ala or Val

<220>

<221> MOD\_RES

<222> (24)

<223> Ala, Val, Ser, or Thr

<220>

<221> MOD\_RES

<222> (27)

<223> Tyr, Phe, Ser, or Asp

<220>

<221> MOD\_RES

<222> (29)

<223> Phe, Leu, or Ile

<400> 84

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
   1                  5                  10                  15

Ser Met Lys Leu Ser Cys Xaa Xaa Ser Gly Xaa Thr Xaa Ser  
                   20                  25                  30

<210> 85

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
           antibody framework heavy chain sequence

&lt;400&gt; 85

Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val Ala  
 1 5 10

&lt;210&gt; 86

&lt;211&gt; 32

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 antibody framework heavy chain sequence

&lt;220&gt;

&lt;221&gt; MOD\_RES

&lt;222&gt; (8)

&lt;223&gt; Asp or Val

&lt;220&gt;

&lt;221&gt; MOD\_RES

&lt;222&gt; (14)

&lt;223&gt; Tyr or Ser

&lt;220&gt;

&lt;221&gt; MOD\_RES

&lt;222&gt; (22)

&lt;223&gt; Ala or Val

&lt;220&gt;

&lt;221&gt; MOD\_RES

&lt;222&gt; (32)

&lt;223&gt; Arg, Gly, Asn, Lys, or Ser

&lt;400&gt; 86

Arg Phe Thr Ile Ser Arg Asp Xaa Ser Lys Ser Ser Val Xaa Leu Gln  
 1 5 10 15

Met Asn Asn Leu Arg Xaa Glu Asp Thr Gly Ile Tyr Tyr Cys Thr Xaa  
 20 25 30

&lt;210&gt; 87

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 antibody framework heavy chain sequence

&lt;220&gt;

&lt;221&gt; MOD\_RES

&lt;222&gt; (11)

&lt;223&gt; Ser or Ala

<400> 87

Trp Gly Gln Gly Thr Thr Leu Thr Val Ser Xaa  
 1 5 10

<210> 88

<211> 23

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 antibody framework light chain sequence

<220>

<221> MOD\_RES

<222> (2)

<223> Ile, Val, or Leu

<220>

<221> MOD\_RES

<222> (4)

<223> Met or Leu

<220>

<221> MOD\_RES

<222> (7)

<223> Thr or Ala

<220>

<221> MOD\_RES

<222> (8)

<223> Phe or Ala

<220>

<221> MOD\_RES

<222> (9)

<223> Leu or Phe

<220>

<221> MOD\_RES

<222> (11)

<223> Leu or Asn

<220>

<221> MOD\_RES

<222> (14)

<223> Ser or Thr

<220>

<221> MOD\_RES

<222> (17)

<223> Asp or Thr

<220>  
 <221> MOD\_RES  
 <222> (18)  
 <223> Gln or Ser

<400> 88  
 Asp Xaa Val Xaa Thr Gln Xaa Xaa Xaa Ser Xaa Pro Val Xaa Leu Gly  
       1                      5                      10                      15  
 Xaa Xaa Ala Ser Ile Ser Cys  
                       20

<210> 89  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
       antibody framework light chain sequence

<220>  
 <221> MOD\_RES  
 <222> (8)  
 <223> Gln or Leu

<220>  
 <221> MOD\_RES  
 <222> (11)  
 <223> Lys or Gln

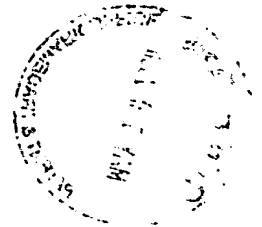
<220>  
 <221> MOD\_RES  
 <222> (14)  
 <223> Ile or Val

<400> 89  
 Trp Tyr Leu Gln Lys Pro Gly Xaa Ser Pro Xaa Leu Leu Xaa Tyr  
       1                      5                      10                      15

<210> 90  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
       antibody framework light chain sequence

<220>  
 <221> MOD\_RES  
 <222> (8)  
 <223> Gly or Ser



<220>  
 <221> MOD\_RES  
 <222> (18)  
 <223> Lys or Arg

<220>  
 <221> MOD\_RES  
 <222> (27)  
 <223> Leu or Val

<400> 90  
 Gly Val Pro Asp Arg Phe Ser Xaa Ser Gly Ser Gly Thr Asp Phe Thr  
           1                  5                  10                  15  
 Leu Xaa Ile Ser Arg Val Glu Ala Glu Asp Xaa Gly Val Tyr Tyr Cys  
                   20                  25                  30

<210> 91  
 <211> 12  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
           antibody framework light chain sequence

<220>  
 <221> MOD\_RES  
 <222> (3)  
 <223> Gly or Asp

<220>  
 <221> MOD\_RES  
 <222> (9)  
 <223> Ile or Leu

<400> 91  
 Phe Gly Xaa Gly Thr Lys Leu Glu Xaa Lys Arg Ala  
           1                  5                  10